1. A device for separating and detecting particles comprising:

a capillary having a first end and a second end, the capillary filled with a buffer solution;

an electrical source for applying a voltage across the capillary, the voltage causing the particles to travel from a first location within the capillary to a second location within the capillary; and

a detector for determining the location of particles within the capillary, the detector capable of determining the location of particles at more than one position along the length of the capillary.

2. The device of claim 1, further comprising a first reservoir in fluid communication with the first end of the capillary, the first reservoir configured to contain buffer solution and a second reservoir in fluid communication with the second end of the capillary, the second reservoir configured to contain buffer solution.

3. The device of claim 1, further comprising a fluorescent label attached to the particles.

4. The device of claim 3, wherein the detector further comprises an excitation source for directing an excitation beam onto the fluorescently labeled particles within the capillary, the fluorescently labeled particles emitting light after excitation with the excitation beam.

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5. The device of claim 4, wherein the detector further comprises a light detector positioned to collect fluorescent light emitted from the excited fluorescently labeled particles.

6. The device of claim 5, wherein the light detector comprises low-level light detection electronics.

7. The device of claim 5, further comprising a coating on the capillary which transforms the capillary into a light wave guide directing the fluorescent light toward the light detector.

8. The device of claim 7, wherein the coating has a refractive index number in the range from about 1.1 to about 1.4.

9. The device of claim 7, wherein the coating has a refractive index number of about 1.3.

10. The device of claim 8, wherein, the coating is polytetrafluoroethylene.

11. The device of claim 4, wherein the excitation beam has a power in the range from about 1 mW to about 1000 mW.

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12. The device of claim 4, wherein the excitation beam has a width in the range from about 5 μm to about 1000 μm.

13. The device of claim 4, wherein the light detector can distinguish between more than one color of fluorescent light.

14. The device of claim 4, wherein the light detector may be placed at either end or both ends of the separation capillary.

15. The device of claim 1, further comprising a plurality capillaries.

16. The device of claim 1, wherein the electrolyte buffer comprises tris-boric acid EDTA, potassium tartrate, tris-acetate EDTA, a gel sieving material, and a surface deactivating agent.

17. The device of claim 16, wherein the gel sieving material is selected from the group consisting of poly(ethylene glycol), poly(vinyl alcohol), hydroxy propyl methyl cellulose, hydroxyethylcellulose, and linear polyacrylamide.

18. The device of claim 16, wherein the surface deactivating agent is poly(vinylpyrrolidone).

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19. A device for separating and detecting particles comprising:

a capillary having a first end and a second end the capillary filled with a buffer solution;

a first reservoir in fluid communication with the first end of the capillary, the first reservoir configured to contain buffer solution;

a second reservoir in fluid communication with the second end of the capillary, the second reservoir configured to contain buffer solution;

an electrical source for applying a voltage across the capillary, the voltage causing a fluorescently labeled particle positioned within the capillary to travel from a first location within the capillary to a second location within the capillary;

an excitation source for directing an excitation beam onto the capillary, such that when a fluorescently labeled particle is positioned within the capillary, the fluorescently labeled particle emits light after excitation with the excitation beam;

the excitation source capable of exciting fluorescently labeled particles at more than one position along the capillary; and

a light detector positioned to collect fluorescent light emitted from excited fluorescently labeled particle located within the capillary.

20. The device of claim 19, further comprising a coating on the capillary which transforms the capillary into a light wave guide capable of directing the fluorescent light toward the light detector.

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21. The device of claim19, wherein the coating has a refractive index of about 1.3.

22. The device of claim 19, wherein, the coating is polytetrafluoroethylene.

23. The device of claim 19, wherein the light detector comprises a fiber optic coupled end-on to the capillary.

24. The device of claim 19, wherein the light detector comprises low-level light detection electronics.

25. The device of claim 24, wherein the low-level light detection electronics are selected from the group consisting of photomultipliers, photodiodes, and CCD cameras.

26. The device of claim 24, wherein the light detector further comprises an optical filter, prism, grating, or light spectrometer positioned between the light detection electronics and the capillary for filtering incident light, and the resulting fluorescence.

27. The device of claim 26, wherein the optical filter comprises a high band pass filter for filtering light with a wavelength greater than about 500 nm and a notch filter.

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28. The device of claim 26, wherein the optical filter comprises a narrow band pass filter which filters light other than light with a wavelength corresponding to the wavelength of the light emitted from the fluorescent label, ± 10 nm.

29. The device of claim 19, wherein the excitation beam is rastered along part or all of the length of the capillary.

30. The device of claim 19, wherein the excitation beam has a power in the range from about 1 mW to about 1000 mW.

31. The device of claim 19, wherein the excitation beam has a width in the range from about 5 μm to about 1000 μm.

32. The device of claim 19, wherein the light detector can distinguish between more than one color of fluorescent light.

33. The device of claim 19, further comprising a plurality capillaries.

34. The device of claim 19, wherein the electrolyte buffer comprises tris-boric acid EDTA (TBE), potassium tartrate, tris-acetate EDTA (TAE), a gel sieving material, and a surface deactivating agent.

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35. The device of claim 34, wherein the gel sieving material is selected from the group consisting of poly(ethylene glycol), poly(vinyl alcohol), hydroxy propyl methyl cellulose, hydroxyethylcellulose, or linear polyacrylamide.

36. The device of claim 16, wherein the surface deactivating agent is poly(vinylpyrrolidone).

37. The device of claim 34, wherein the gel sieving material is at a concentration in the range from about 0.1% to about 5% and has a viscosity in the range from about 0.5 cp to about 50 cp at room temperature.

38. The device of claim 19, wherein the capillary has a length in the range from about 5 cm to about 100 cm.

39. The device of claim 19, wherein the capillary has a length of about 20 cm.

40. A method for separation and sizing of particles in short channels by capillary electrophoresis comprising:

obtaining a sample of particles;

fluorescently labeling the particles;

loading the sample into a device for separating and sizing particles, the device comprising a capillary having a first end and a second end filled with a buffer solution, a

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first reservoir in fluid communication with the first end of the capillary, the first reservoir configured to contain the buffer solution, a second reservoir in fluid communication with the second end of the capillary, the second reservoir configured to contain the buffer solution, an electrical source for applying a voltage across the capillary, the voltage causing the fluorescently labeled particles to travel from a first location within the capillary to a second location within the capillary, an excitation source for directing an excitation beam onto fluorescently labeled particles within the capillary, the fluorescently labeled particles emitting fluorescent light after excitation with the excitation beam, the excitation source capable of exciting the fluorescently labeled DNA particles at more than one position along length of the capillary, and a light detector positioned to collect the fluorescent light emitted the excited fluorescently labeled particle;

applying the voltage across the capillary;

rastering the excitation beam on the capillary;

monitoring fluorescent light in the light detector; and

comparing the position of the excitation beam on the capillary when light is collected by the light detector to determine the position of the particles in the capillary; and

determining the relative size of the particles from the determined position.

41. The method of claim 40, wherein the device further comprises at least one additional capillary having a first end and a second end, the at least one additional capillary filled with buffer solution and in fluid communication with the first and second

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reservoirs, the method further comprising obtaining a second sample of particles of a known size, fluorescently labeling the particles of the second sample, applying the voltage across the at least one additional capillary, rastering the excitation beam on the at least one additional capillary, monitoring the collection of fluorescent light in the light detector; and comparing the position of the excitation beam on the capillary when light is collected by the light detector to determine the position of the particles of known size, comparing the position of the particles of known size to the position of the sample particles to determine the size of the sample particles.

42. The method of claim 41, wherein the voltage is in the range of about 4,000 V to about 20,000 V dc.

43. The method of claim 41, wherein the capillary has a length in the range of about 5 cm to about 100 cm.

44. The method of claim 43, wherein the length is in the range of about 10 cm to about 25 cm.

45. The method of claim 43, wherein the length is in the range of about 20 cm.

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46. The method of claim 41, wherein the particle is selected from the group consisting of a nucleic acid, a protein, inorganic ions, and organic ions, and neutral species.

47. The method of claim 41, wherein the device further comprises a coating on each of the capillaries which transforms the capillary into a light waveguide directing the fluorescent light toward the light detector.

48. The method of claim 47, wherein the coating has a refractive index of about 1.3.

49. The method of claim 47, wherein the coating is Teflon® AF.

50. A method for sequencing DNA comprising:

obtaining a sample of DNA to be sequenced;

running a dideoxy sequencing reaction on the DNA sample, the sequencing reaction comprising a separate reaction mixture for each nucleotide type, each reaction mixture comprising a different flourescent label, each reaction mixture run to form a separate reaction product;

pooling the reaction products of the reaction mixtures;

loading the pooled reaction products into a device for separating and detecting particles, the device comprising a capillary having a first end and a second end filled with

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a buffer solution, a first reservoir in fluid communication with the first end of the capillary, the first reservoir configured to contain the buffer solution, a second reservoir in fluid communication with the second end of the capillary, the second reservoir configured to contain the buffer solution, an electrical source for applying a voltage across the capillary, the voltage causing the fluorescently labeled reaction products to travel from a first location within the capillary to a second location within the capillary, an excitation source for directing an excitation beam onto the fluorescently labeled reaction products within the capillary, the fluorescently labeled reaction products emitting fluorescent light after excitation with the excitation beam, the excitation source capable of exciting the fluorescently reaction products at more than one position along length of the capillary, and a light detector positioned to collect the fluorescent light emitted the excited fluorescently labeled reaction products;

applying the voltage across the capillary;

rastering the excitation beam on the capillary;

monitoring the collection of fluorescent light in the light detector; and

comparing the position of the excitation beam on the capillary to the color of light detected by the light detector to determine the position of a corresponding nucleotide within the DNA sample.

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